The Infantry Squad: Decisive Force Now and in the Future

Major General Robert B. Brown, U.S. Army

Major General Robert B. Brown is the commander of the U.S. Army Maneuver Center of Excellence, Fort Benning, GA.

PHOTO: U.S. soldiers search for weapon caches and intelligence outside Joint Security Station Basra, Iraq, 23 July 2010. (U.S. Army photo by SPC Joshua E. Powell)

THE U.S. ARMY dismounted infantry squad is today's most decisive force on the battlefield, yet it lacks access to capabilities it could use to truly synchronize the total fight. Despite new soldier equipment and technological advances we deployed in Afghanistan and Iraq, squads operate in the same manner their predecessors did in Vietnam and Korea and during World War II. The infantry squad has been excluded from the technological development that provided combat overmatch for the remainder of our forces. The future infantry squad needs—

- Access to a complete mission-command and intelligence network.
- Organic and external on-demand feeds for situational awareness.
- Reduced soldier load and robotic improvements.
- A design that includes the human dimension as a foundation.

In the Near Future

The vignette that follows describes how the infantry squad ought to operate in the battle space.

The 1st Squad, 3rd Platoon, is conducting a movement to contact in mountainous terrain as part of a platoon and company team mission. The squad's task is to destroy insurgent forces near a local village. Recent intelligence indicates the insurgents are using the village as a staging area for attacks on coalition forces. The terrain surrounding the village is unforgiving, forcing the squad to operate for long periods at high altitudes in varying temperatures. The steep terrain, moderate vegetation, and numerous villages nearby provide the insurgents valuable cover and concealment as well as significant standoff, enabling them to conduct effective ambushes.

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Here is 1st Squad's context: an infantry squad, a tactical small unit, that the Army developed in a concerted effort to examine every aspect of squad dynamics and the missions and tasks it must be able to accomplish. These improvements went beyond enhancements in individual weapon, personal protection, optics, and basic communication platforms. The improvements were based on the combat-proven reality that *we must treat the infantry squad as the foundation of the decisive force*.

First, before this squad leaves the line of departure, the squad leader does what good squad leaders have always done: he conducts a rehearsal. However, this rehearsal is different from those in the past. This squad leader has tools at his disposal that previous generations did not.

This squad leader carries his battle command hand-held device, the centerpiece for situational awareness for the infantry squad. The device integrates soldiers into the network and provides connectivity laterally and vertically. The squad leader is able to pull the most recent satellite images and 3-D mapping programs from the network and download the most relevant human and signals intelligence from the company intelligence support team to develop a better picture of the terrain and environment. He accesses recent historical records of enemy activities for pattern analysis and to determine probable hot spots. From this, he develops a detailed plan, and because of improvements in surveillance and detection, he can analyze his mission and its probable contingencies thoroughly and execute detailed rehearsals.

Members of 1st Squad are all on the network. They see what he sees. Their input is much more informed and informative in the planning phase and more valuable. The squad leader shows team leaders and squad members the terrain's complexity and primary and alternate routes through it by conducting a map reconnaissance and rehearsal along with the standard rehearsal of concept, the "ROC drill." On-demand network access enables the squad leader and his soldiers to fly the mission from various perspectives during the rehearsal.

The platoon leader coordinates with the company commander to obtain combat engineer terrain analysis to confirm the squad's planning. The platoon leader takes the refined squad planning and refines his platoon order so the company commander can approve the best bottom-up plans.

The ability to visualize the battle space before movement enables the squad leader to plan logistics and determine the squad's tactical load. He instructs his team leaders on the load plan and designates equipment to carry or load into the squad's semi-autonomous load-carrying system, which reduces mobility constraints and increases agility.

The squad leader conducts his precombat checks and rehearsals, back-briefs the platoon leader, and then receives the order to step off on the mission. He coordinates with the platoon to deconflict the squad's suite of ground and air sensors, and integrates the squad's organic sensors with those of the company, battalion, brigade, and theater to create an unblinking eye that enables the squad to observe the battle space beyond small arms contact range. This "unblinking eye" is not a new concept, but it now provides company, battalion, brigade, and division live feeds on demand to the soldiers at the tip of the spear.

Several kilometers into the movement, a sensor alerts the squad leader of movement ahead. Previously, the squad leader ordered soldiers to investigate such alerts; today, he has several other options. He chooses to launch his own short-term, quick-look airborne sensor. Unfortunately, due to the thick vegetation and hilly terrain, he is unable to get the fidelity he needs, so he directs the Bravo Team leader to retrieve an unmanned ground combat vehicle from the squad's semi-autonomous, load-carrying system.

A squad member moves the vehicle toward the suspected enemy position and confirms that a four-man enemy force is waiting in ambush along a ridge overlooking the squad's direction of movement. Armed with this new intelligence, the squad leader develops a plan for a hasty attack and distributes it to his team leaders over the network. Meanwhile, the information is transmitted to the platoon and quickly converted into an indirect fire request.

The company command post receives the request and issues a call for fire request. Equipped with the exact location of 1st Squad and the enemy forces, the company commander requests precision mortar system fire from the battalion. The battalion forwards the data to troops in contact and to the brigade and re-tasks a supporting air weapons team to support the platoon.

While this coordination is ongoing at echelons above the squad, the squad leader maneuvers to a position where he can place direct fire on the enemy. Once the squad is in place, he coordinates with the platoon leader who initiates the precision-guided mortar fire mission, allowing the squad to place controlled, effective direct fires onto the enemy position.

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As the surviving insurgents withdraw from the position, target handoff is conducted to allow the air weapons team to complete the destruction of the enemy. The network simplifies and expedites the deconfliction of fires by allowing the air weapons team to "see" friendly unit locations.

With the enemy forces now killed or captured, the squad leader conducts sensitive site exploitation and uses the network to transmit images and biometrics through his platoon leader to the company intelligence support teams for further analysis. In the end, we have turned the tables on what most likely would have been an effective enemy ambush requiring the commitment of additional squads from the platoon.

First Squad regroups and continues its mission, maneuvering over the ridge to within visual range of its final objective, the village. The squad leader continues using his suite of sensors to assess the situation in the village, and communicates with the platoon leader to update situational awareness throughout the entire company team. The recent firefight has alerted the enemy to the squad's presence, and soon the unblinking eye detects enemy activity on the rooftops of several buildings near the entrance into the village.

The squad leader uses his handheld device to see the enemy preparing to defend the safe haven. The platoon leader tasks the squad to seize a foothold in the village. The company commander tasks adjacent platoons to establish blocking positions isolating the village.

The network provides the squad leader the ability to refine graphic control measures and distribute the updates efficiently throughout the formation. The squad's access to the network enables efficient fires planning, mitigates risk at all levels, and provides faster access to precision fires and fires clearance. The integrated network capability ensures situational awareness for 1st Squad, the rest of the platoon, and mounted elements maneuvering into their blocking positions.

The movement to contact has changed to a deliberate attack in a matter of minutes based on network connectivity and the ability to pull intelligence from sources once only available to battalions and brigades.

The squad leader maintains overwatch as teams rotate to the squad's semi-autonomous load-carrying system to pick up urban breaching equipment and reconfigure their loads for an urban attack.

The squad leader then dispatches several unmanned ground vehicles to reconnoiter possible routes into the village. Meanwhile, members of his squad nominate targets as they observe them.

A close air support aircraft outfitted to send and receive ground-based data checks in overhead and is immediately fed the current location of friendly and enemy forces. The aircraft is prepared to assist if the joint fires observer requests it to do so. It also feeds reports from its sensors to the squad leader to support the reconnaissance effort. The company fire support officer receives all the nominated targets and updates the fire support plan.

We have seized the initiative through the integrated use of technology, training, and information. Because of surveillance domination, the unit has begun the attack instead of reacting to enemy contact.

This scenario may seem futuristic, but it is the key to the success of the dismounted infantry squad, as the foundation of the decisive force on the battlefield. The technology exists today, yet dismounted soldiers in the fight cannot fulfill this potential because they do not have access to what they need to make the critical decisions described here.

The Squad as the Foundation of the Decisive Force of the Future

Despite technological developments and millions of procurement dollars spent to increase soldier lethality and protection, today's infantry squad is still limited in its capabilities as a formation in close combat. It still fights with a line-of-sight voice radio link to the outside world and with paper maps and global positioning systems.

Once a squad moves dismounted from its base or platform, its information and situational awareness decays at a rapid pace. Current capabilities and training do not allow the squad to maintain a cognitive presence to maneuver to a position of advantage and use indirect, rotary wing, or fixed wing fires on the enemy.

On the other hand, if the squad has network linkages to brigade combat team-level assets, it becomes the dominant force on the decentralized battlefield and improves decisiveness throughout the hierarchy of command. The squad needs to share situational awareness with mounted elements, fires elements, supporting air elements, and higher headquarters. The squad is integral to developing the situation and can close with and destroy the enemy.

Network the Dismounts!

To truly become the dominant ground force, we must provide the same capabilities to dismounted elements at the lowest levels that we provide to our mounted forces, headquarters, and supporting organizations.

Over the last 60 years, technological advances, doctrine, and training have given U.S. forces unprecedented dominance in the air and on the sea. Our capabilities overmatch in land-based high intensity conflict has helped produce lopsided victories such as Operation Desert Storm and the initial phases of Operation Iraqi Freedom. Our networked joint force has demonstrated unmatched capabilities. Dominance in all fights is what we want; in decentralized operations, we never want to place our squads in a fair fight. Squads should have the same advantages that our mounted forces use to achieve overmatch.

Operations in Iraq and Afghanistan have revealed seams in our high intensity conflict capabilities. Nonstate actors blending in with the civilian populace have had some success in exploiting these seams to negate advantages that have made us the world's preeminent military force.

Counterinsurgency operations place dismounted forces in a com-

(U.S. Air Force photo by SrA Sean Martin, Kandahar Provincial Reconstruction Team)

A soldier scans his area at the Dahla Dam, Kandahar Province, Afghanistan, 20 September 2011.

(Photo: SGT Giancarlo Casem)

Robots such as TALON allow warfighters to clear routes quickly without having to wait for explosive ordnance disposal teams. Here a TALON robot inspects a suspected improvised explosive device.

plex environment to find, fix, and finish the enemy, but due to a lack of connectivity, squads cannot take advantage of our advances in reconnaissance and surveillance platforms, aviation support, precision fires (such as the Excalibur munitions), and intelligence collaboration. Unless we bring dismounted infantry squads into the network and provide them on-demand access to the same tools that air, sea, and mounted warriors have, we deprive ourselves of combat overmatch at the tip of the spear.

How far down do we push the network capability? Some would say to the company commander level; others say to the platoon leader or squad leader level. However, the truth is, the network needs to be available at the individual soldier level.

Some worry that a tactical squad radio full of chatter will drown out leaders or overwhelm soldiers with information, but today's soldiers do not view the information coming to them over the network as overload. Soldiers are comfortable with digital connectivity in a way an earlier generation of soldiers were comfortable fighting shoulder-to-shoulder with their buddies. This generation of soldiers stays connected socially via Facebook, Twitter, and text messages and is more comfortable with a smart phone than a radio. Some young soldiers have smart phones with hundreds of applications on them. They do not run all the applications simultaneously; they filter and prioritize them. Realistic training using the blended training model (incorporating repetition and live, virtual, constructive gaming) can easily train soldiers to deal with information on the network.

Seizing the Initiative

Ten years of conflict have taught us the need to initiate contact with the enemy. Most of our hostile fire engagements in Iraq and Afghanistan have been responses to enemy attacks (direct fire, improvised explosive device [IED] fires, and suicide attacks). This puts us at a tactical disadvantage.

Our squads must fight to regain the initiative. This paradigm has been an accepted way of life for our soldiers, dating from the "search and destroy" doctrine of Vietnam. We have done a good job of protecting soldiers and modifying our tactics, techniques, and procedures to help them better survive initial contact with the enemy. However, we have failed to provide units with sensor systems that can detect the enemy presence before they engage. A networked squad with a robust sensor capability can detect a pending ambush, save lives, and greatly increase combat effectiveness.

The Army has made great advances in equipping units with tools to provide a common operating picture, but unfortunately, these are limited to ground-vehicle-centric platforms, static command and control facilities, and airframes. Once a leader dismounts from these platforms, he loses Blue Force Tracker, common ground viewers, access to unit databases, updated situation reports, and time-sensitive information. Once on the ground, the squad essentially unplugs from the network and reverts to paper map and voice radio mode. Once the squad leader unplugs from the network, he has degraded his squad's situational understanding and that of all units supporting it.

We have equipped soldiers in an ad hoc manner too many times in our history, creating challenges in interoperability, soldier load, and overlapping capabilities. Fortunately, the Program Executive Office-Soldier process currently looks at the individual soldier as a system to equip him in a holistic fashion. The Army is moving in the right direction in updating soldier equipment, but the institution needs to do more. We need to view the

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small unit as the foundation of the decisive force and the soldier as a component of that system. We must realize there is no single silver bullet that will propel us forward, only a series of small developments conceived from holistic solutions.

Company commanders are now in charge of a battle space that battalion commanders were responsible for 10 years ago. In Iraq recently, a single company operated as the sole ground force in Najaf Province (population 1.6 million). Approximately 100 U.S. soldiers conducted daily operations in an area that once required multiple battalions. It follows that squad and section leaders need the tools for combat overmatch on such battlefields. This reasoning is not to imply that a company will control the field with the same level of effectiveness as a battalion, but by infusing information rapidly down to the lowest maneuver force (the infantry squad), we empower the company to orient combat power at the right time and place to achieve overmatch in the larger battle space.

Resourcing Squads as the Foundation of the Decisive Force

Currently, less than 10 percent of the Army's Fiscal Year (FY) 2012 equipping budget is dedicated to maneuver. Funding for soldier programs, as a percentage of total Army budget resources, grew from under 1 percent in FY 2003 to approximately 2.5 percent in FY 2007. By FY 2009, it had dropped to under 1.5 percent, and the FY 2011 budget requests reflect this same level. Our Army must recognize the continued strategic contribution of soldiers and improve their resource allocation. We need to dedicate more resources to the development of the squad, to include organizational changes, leader development frameworks, training facility upgrades, and training methodologies. The process of enabling squads must remain competitive for resources with the Joint Strike Fighter, unmanned combat air vehicles, the fifth generation fighter, the Ford-class aircraft carrier, and the littoral combat ship.

The Army should treat the squad as a system during the acquisition process and synchronize the methods it uses to develop equipment for it. Under the Army's current system, over 466 programs deal with some aspect of improving the squad, but they are disjointed. Some of them lack the proper

champion due to vague application goals or a lesser-known Program Executive Office. A holistic view of the squad and the ability to prioritize weapons programs for it would remedy these issues.

The squad may be more strategic than any other system in the overall force today. When we position an aircraft carrier off the coast, we are employing an aspect of national power to achieve a desired end state, but the decision to put boots on the ground is a much more strategically fraught decision than the positioning or even use of air and sea power. Air and sea power remain vital to achieving our national objectives, but ground forces are seen as exercising our Nation's commitment to force change and limit the enemy's freedom of maneuver. Employing ground forces is a strategically binding decision in a way air and sea power is not.

The Maneuver Center of Excellence is currently in the process of developing capabilities requirements

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for the squad as a formation. This should not simply be a Maneuver Center of Excellence project to develop the squad, but instead, a collaborative effort involving other centers of excellence, the operating force, industry, and academia. In the end, the issue is bigger than the squad.

Capability Requirements

Some of the themes we need to explore and develop further follow.

Surveillance domination. The squad needs access to what retired Major General Robert Scales describes as an "unblinking eye"—a *squad-organic or enabled reconnaissance and surveillance capability*. In the current fight, a squad leader may have situational awareness of events in his area of operations. Surveillance domination goes beyond that to access a vast network of sensors at all levels that provide critical information about areas the squad has yet to patrol—sensors that detect movement, allow soldiers to see into

U.S. soldiers and Afghan border police stand guard outside the Wesh Boys High School, Spin Boldak District, Kandahar Province, Afghanistan, 12 June 2011.

(U.S. Army photo by SGT Joseph J. Johnson)

buildings, and amplify sound (by active and passive means). We then need to tie all these feeds into a comprehensive network that we can synchronize to create the truly "unblinking eye." The squad leader alone cannot do this; he has near-term stimuli to answer to. Enhancing the abilities of the company intelligence support team to make it capable of analysis, and feeding it down to the squad, provides that information most crucial to the squad.

Close combat supremacy. Squads must maintain their ability to close with and destroy the enemy. This means using lightweight, durable, and easy to use equipment. Maintaining the ability to defeat the enemy becomes complex only when restrictions apply to the fight and put the squad in a bind. A network link provides intelligence on the enemy and the capability to make quick decisions and apply combat power at the right place and time. The network is the materiel solution, but leader development at all levels is necessary to truly enable the squad to be a decisive force against the enemy. In an asymmetric fight, squad decisiveness could mean placing lethal effects into an enemy strongpoint—or could include coordinating humanitarian assistance quickly to gain a civil victory.

Cognitive presence. Providing a link to Tier 2 and 3 facilities in an austere environment will give small unit leaders a better understanding of the environment. Creating the ability to turn the company intelligence support team into a knowledge center for all company assets allows leaders to understand all facets of the zone. Acting alone, a leader cannot maintain spheres of influence, locations of significant enemy activity, key infrastructure support operations, and the status of local security forces on his map. A knowledge center available at his command can increase his ability to see changes in his environment quickly.

Company, platoon, and squad interaction with the company intelligence support team can produce rapid information dissemination and rapid decision making. We need to create an immersive training environment so that our junior leaders can experience decision making challenges when lives are not at stake.

Sustained unit proficiency through training; squad combat training center. As we equip the squad, we need to focus on developing and refining its members' skills using a blended training model of live, virtual, constructive, gaming, and immersive training. The squad must be able to use all the equipment it will use in wartime during simulations and training. Immersion in various environments and the integration of a live opposing force along with simulations will help create the complex environment squads will face. We should test all levels of command simultaneously to sustain the use of all enablers at the point of the spear. This training model needs to be available anywhere, not just for predeployment but also during deployment.

Mobility (soldier's load). Rather than adding more equipment to the squad, the Army should add capabilities while finding efficiencies through multiple-use devices, innovative power generation, robotic load-carrying vehicles, and exoskeletons that allow soldiers to carry more equipment.

We must also place more emphasis on breaching mine and wire obstacles, IED detection, and complex urban breaching capabilities. Maintaining mobility in the fight involves more than the ability to cross a danger area quickly. The speed and the distance that a squad can send and receive information enables it to maintain the initiative in its area.

We need to continue to reduce the load we burden the squad with; we must examine everything from

protection to ammunition, weapons, and equipment. Initially, we may make the most progress in the continued development of battery technology and alternate energy solutions.

Survivability and countermobility. Defense is a tactical unit core competency. We need to reexamine the dismounted infantry squad's capability to set up obstacles, dig fighting positions, and establish engagement areas. Today, the entrenching tool (e-tool) is still the primary means a soldier has to dig fighting positions and emplace obstacles. In 1959, the U.S. Army envisioned that the "soldier of tomorrow" would be equipped with explosive "fox-hole diggers" instead of e-tools to rapidly establish a fighting position. Now, 52 years later, the soldier of today is no better prepared to build a survivability position than his predecessors were in 1959, or his great-grandfathers were in 1918. There has to be a better way for our squads to increase their survivability in a defense.

The human dimension (soldier's touch). Human beings are essentially social animals who are more comfortable in groups. Human connections comfort us in times of stress and strengthen us in times of danger. How do we replicate that "human touch" over a network to reduce feelings of isolation on the battlefield? The simple answer is to maintain voice communication while integrating the network, but this can be a complex problem. It may even involve augmented reality icons showing other members of the squad when necessary, for example, if someone is behind a wall, building, or other obstacle. Greater understanding of the human dimension suggests training our leaders and organizations in how to think instead of what to think. This will increase the units' abilities to accomplish the mission through mission command and will reduce the risk of micro-management. Immersive training capabilities at the infantry squad level require repeated rehearsals and simulations using the same systems in garrison as when deployed.

We must also prepare our leaders of the future with the best institutional training before they join their units by increasing our student load capability in Ranger School and providing more opportunities for Infantry, Armor, Engineer, and Field Artillery leaders to attend the best leader development training our Army has to offer.

Lethality. The ability to find, fix, and finish the enemy is paramount to any tactical formation. We must maintain it and improve upon it. The squad's weapons must complement each other and give the squad the capability to use both precision direct fires and devastating area fires. Ammunition should kill or incapacitate an armored enemy as well as an insurgent without body armor. We must also maintain and improve the squad's capability to deliver high-explosive counter-defilade fires against an entrenched enemy.

Protection. Although the goal of the unblinking eye is to allow the squad to make first contact, it must maintain the ability to survive first contact and maneuver in a hostile environment. This includes the capability to defeat chemical, biological, radiological, and nuclear threats without degrading mobility and lethality. The squad must also be able to defend against small-arms fire and shrapnel. Protection must complement mobility, not hinder it.

Power and energy. Batteries are and will be an obstacle to overcome. Each component of the squad comes with its own type of battery, its own power draw, and its own logistical requirement. We should use a holistic approach to solve these power and energy challenges. Battery commonality is a start. We might focus on kinetic energy converters, the use of isotopes, and other innovative power generation means to provide the energy for the squad's technology in an austere environment. When we connect the infantry squad to the network, we must provide it with the power to stay connected without overloading it with batteries.

Shape the Future

We are at a critical point in our history. It would be easy to maintain our status quo and recover after 10 years of conflict as we look to gain efficiencies and draw down overseas commitments. We cannot afford to do this. If current events are any indication of future conflicts, the future will be turbulent. Dwight D. Eisenhower said, "Neither a wise nor a brave man lies down on the tracks of history to wait for the train of the future to run over him." Now is our time to shape the future. Our infantry squads are decisive now. We will have failed them unless they are decisive and dominant in the future! *MR*